IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

David Snowdon, et al.

Application for Patent

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Title: ELECTRONIC BOARD SYSTEM

APPELLANTS' BRIEF ON APPEAL

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1. REAL PARTY IN INTEREST

Xerox Corporation (the assignee).

2. RELATED APPEALS AND INTERFERENCES

No other Appeals or Interferences are known to Appellants, Appellants' Legal Representative, or the Assignee which will directly affect, or be directly affected by, or have a bearing on the Board's decision in the pending Appeal.

3. STATUS OF CLAIMS

Claims 1-31 are rejected.

4. STATUS OF AMENDMENTS

Appellants bring this appeal because Claims 1-31 have been finally rejected. Pursuant to 37 CFR §1.191(a)(1), every applicant for a patent, any of whose claims has been finally rejected, may appeal from the decision of the examiner to the Board of Patent Appeals and Interferences.

5. SUMMARY OF INVENTION

Appellants' invention is directed, in one embodiment, to an electronic board system having a screen for displaying information items of interest in different areas of the screen and apparatus for sensing which areas of the screen are of current interest to users viewing the screen (patent application, [hereinafter, "pa"], page 4, lines 18-21). An input device receives information items to be displayed on the electronic board from a plurality of users (pa page 4, lines 21-22). A memory stores information items received from the input device (pa page 4, lines 29-30). A processor selects which information items from the input device and the memory to display on the screen, determines where and how to display the selected information items on the screen and displays the selected information items in the different areas on the screen (pa page 5, lines 2-5). The processor dynamically selects which information items to display on the screen in accordance with a predetermined relationship based on group-based recommendation criteria and reactively selects which information items to display on the screen in accordance

with sensed user interest as determined by the sensing apparatus (pa page 5, lines 5-7, 18, 28). In response to user interest as determined by the sensing apparatus, the processor displays more items on the screen that are similar to items in the sensed areas at the expense of items in areas in which there is less user interest (pa page 5, lines 28-30).

6. ISSUES

A. Whether Claims 1, 2, 5-7, 9-15, 17, 18, 26, 27, 28, 30 and 31 are unpatentable under 35 USC §103(a) over WO 99/19804 (corresponds to U.S. patent no. 6,351,271) to Mainwaring and US patent no. 5,831,602 to Sato et al.

B. Whether Claims 3and 4 are unpatentable under 35 USC §103(a) over WO 99/19804 (corresponds to U.S. patent no. 6,351,271) to Mainwaring and US patent no. 5,831,602 to Sato et al. and further in view of U.S. Published Application No. 2000/0026398 A1 to Sheth.

C. Whether Claims 8, 16, 19, 21 and 29 are unpatentable under 35 USC §103(a) over WO 99/19804 (corresponds to U.S. patent no. 6,351,271) to Mainwaring and US patent no. 5,831,602 to Sato et al. and further in view of U.S. patent no. 5,983,214 to Lang et al.

D. Whether Claim 20 is unpatentable under 35 USC §103(a) over WO 99/19804 (corresponds to U.S. patent no. 6,351,271) to Mainwaring and US patent no. 5,831,602 to Sato et al. and further in view of U.S. patent no. 5,528,745 to King et al.

E. Whether Claims 22-25 are unpatentable under 35 USC §103(a) over WO 99/19804 (corresponds to U.S. patent no. 6,351,271) and US patent no. 5,831,602 to Sato et al. and further in view of U.S. patent no. 6,493,703 B1 to Knight et al.

7. GROUPING OF CLAIMS

I. Claims 1 - 31 stand or fall together.

8. ARGUMENT

This invention relates to electronic board systems and in particular to an electronic board system employing a recommender system. The electronic board system is both dynamic and reactive.

The electronic board system is dynamic. The electronic board system dynamically selects which information items to display on the screen in accordance with a predetermined relationship based on group-based recommendation criteria. Information items may be updated continually so that old or less relevant items are gradually removed and replaced by more current information. Users can watch the display screen and get an understanding of what is happening now and what has happened in the recent past.

The electronic board system is reactive. The electronic board system reactively selects which information items to display on the screen in accordance with sensed user interest as determined by a sensing apparatus. The board system can use sensors located in or around the electronic board to passively detect which parts of the surface (and thus which information items are of current interest) people are currently standing in front of and gauge approximately the relative sizes of each group of people. The electronic board system senses the areas that users are currently interested in and responds to that interest by devoting more display space to those areas at the expense of areas in which there is less interest.

A. Whether Claims 1, 2, 5-7, 9-15, 17, 18, 26, 27, 28, 30 and 31 are unpatentable under 35 USC §103(a) over WO 99/19804 (corresponds to U.S. patent no. 6,351,271) to Mainwaring and US patent no. 5,831,602 to Sato et al.

Claims 1, 2, 5-7, 9-15, 17, 18, 26, 27, 28, 30 and 31 were rejected under 35 USC §103(a) over WO 99/19804 (corresponds to U.S. patent no. 6,351,271) to Mainwaring and US patent no. 5,831,602 to Sato et al.

1. Neither Mainwaring nor Sato et al. teaches or discloses the use of group-based recommendation criteria.

There is no mention in either Mainwaring or Sato et al. of a system which employs group-based recommendations or the use of group-based recommendations. Mainwaring teaches user input as the only means for displaying information on its communication board. Sato et al. is not concerned with the content of user input; Sato et al. is only concerned with brightness and contrast of the display.

2. Neither Mainwaring nor Sato et al., whether taken alone or in combination, teaches an electronic board system which dynamically selects which information items to display on the screen in accordance with a predetermined relationship based on group-based recommendation criteria.

Mainwaring does not teach dynamic selection of which items to display on the screen in accordance with a predetermined relationship based on group-based recommendation criteria. No where in Mainwaring are group-based recommendation criteria mentioned. Mainwaring's system displays items on an IDU (Input Display Unit) entirely at a user's request. In Mainwaring's system users must request which items to be displayed on a particular IDU. This can be accomplished by tokens 124. The user may use the tokens 124 to request and display data from the storage units 116. After examining the transmitted data, the user may then make modifications using one of the input devices 120 (page 10, lines 9-17). In Mainwaring, messages may be time-stamped and provided in chronological order (page 14, lines 22-23). In Mainwaring, users can access shared persistent data in the form of group boards (page 5, lines 13-14). The group boards store discrete notes in a group database accessible to all members of the group (page 5, lines 14-15). In order to allow users to select a desired group, each IDU includes an input detection space operable to receive user input indicative of a request to access a specific group (page 5, lines 20-22).

User selection of a desired group board to display messages stored in that group board is not the same as "dynamically selecting which information items to display on the screen in accordance with a predetermined relationship based on group-based recommendation criteria."

Sato et al. does not teach dynamic selection of which items to display on the screen in accordance with a predetermined relationship based on group-based recommendation criteria. No where in Sato et al. are group-based recommendation criteria mentioned. Sato et al. is concerned with the problem of the contrast and brightness of the display in relation to the distance from viewers. If the contrast or brightness of the display device of the electronic board is set in consideration of viewers (audience), the contrast and brightness are sometimes too high for a presenter who inputs characters and figures on the electronic board (col. 1, lines 42-45). Sato et al. changes the contrast or brightness of the input area (where a presenter is located) so as

to reduce the uncomfortable feeling given to the presenter (col. 4, lines 16-17).

Changing the brightness or contrast of an input area on the display of the electronic board to reduce the uncomfortable feeling of a presenter is not the same as "dynamically selecting which information items to display on the screen in accordance with a predetermined relationship based on group-based recommendation criteria." Indeed, Sato et al. is not concerned with the information being displayed on the electronic board; only with the contrast and brightness.

3. Neither Mainwaring nor Sato et al., whether taken alone or in combination, teaches an electronic board system which reactively selects which information items to display on the screen in accordance with sensed user interest as determined by the sensing apparatus which, in response to user interest as determined by the sensing apparatus, displays more items on the screen that are similar to items in the sensed areas at the expense of items in areas in which there is less user interest.

The Examiner stated on page 2 of the Final Office Action that "Mainwaring does not disclose reactively selecting which information items to be displayed based on the sensed user interest in a distinct area of the screen, even though Mainwaring does deal with the sensing of user input and user presence within a certain area (citing page 5, lines 20-25).

Sato et al. does not teach an electronic board system which reactively selects which information items to display on the screen in accordance with sensed user interest as determined by the sensing apparatus which, in response to user interest as determined by the sensing apparatus, displays more items on the screen that are similar to items in the sensed areas at the expense of items in areas in which there is less user interest. As described above, Sato et al. is concerned with the problem of the contrast and brightness of the display in relation to the distance from viewers, not placement of items of interest to viewers. If the contrast or brightness of the display device of the electronic board is set in consideration of viewers (audience), the contrast and brightness are sometimes too high for a presenter who inputs characters and figures on the electronic board (col. 1, lines 42-45). Sensors in Sato el al. detect the area on the electronic board display where the presenter is pointing and a controller causes the contrast or brightness in a region around the area to change for a short period of time. Regular contrast or

brightness is set for the audience in the rest of the display. Sato et al. changes the contrast or brightness of the input area (where a presenter is located) so as to reduce the uncomfortable feeling given to the presenter (col. 4, lines 16-17).

4. By combining Mainwaring and Sato et al., at most, one skilled in the art would add the brightness and contrast control feature of Sato et al. to the system of Mainwaring to vary the brightness and contrast of a region near a user who is close to the display (presenter), while leaving the brightness and contrast of the rest of the display at a setting suitable for viewing by users some distance from the display.

In view of the foregoing, Appellants believe that Claims 1, 2, 5-7, 9-15, 17, 18, 26, 27, 28, 30 and 31 are patentable over WO 99/19804 (corresponds to U.S. patent no. 6,351,271) to Mainwaring and US patent no. 5,831,602 to Sato et al.

B. Whether Claims 3 and 4 are unpatentable under 35 USC §103(a) over WO 99/19804 (corresponds to U.S. patent no. 6,351,271) to Mainwaring and US patent no. 5,831,602 to Sato et al. and further in view of U.S. Published Application No. 2000/0026398 A1 to Sheth.

Claims 3 and 4 were rejected under 35 USC §103(a) over WO 99/19804 (corresponds to U.S. patent no. 6,351,271) to Mainwaring and US patent no. 5,831,602 to Sato et al. and further in view of U.S. Published Application No. 2000/0026398 A1 to Sheth.

1. Sheth does not pertain to electronic board systems and does not overcome the lack of teachings in Mainwaring or Sato et al.

Claim 3 depends from Claim 1 and Claim 4 depends from Claim 3. Sheth was cited by the Examiner for teaching the use of mobile computing devices such as personal digital assistants, portable computers or cell phones (Final Office Action page 6, paragraph 2, lines 5-6). Nothing in Sheth teaches or suggests an electronic board system which dynamically selects which information items to display on the screen in accordance with a predetermined relationship based on group-based recommendation criteria. Nothing in Sheth teaches or suggests an

electronic board system which reactively selects which information items to display on the screen in accordance with sensed user interest as determined by the sensing apparatus which, in response to user interest as determined by the sensing apparatus, displays more items on the screen that are similar to items in the sensed areas at the expense of items in areas in which there is less user interest.

In view of the foregoing, Appellants believe that Claims 3 and 4 are patentable over WO 99/19804 (corresponds to U.S. patent no. 6,351,271) to Mainwaring and US patent no. 5,831,602 to Sato et al. and further in view of U.S. Published Application No. 2000/0026398 A1 to Sheth

C. Whether Claims 8, 16, 19, 21 and 29 are unpatentable under 35 USC §103(a) over WO 99/19804 (corresponds to U.S. patent no. 6,351,271) to Mainwaring and US patent no. 5,831,602 to Sato et al. and further in view of U.S. patent no. 5,983,214 to Lang et al.

Claims 8, 16, 19, 21 and 29 were rejected under 35 USC §103(a) over WO 99/19804 (corresponds to U.S. patent no. 6,351,271) to Mainwaring and US patent no. 5,831,602 to Sato et al. and further in view of U.S. patent no. 5,983,214 to Lang et al.

1. Lang et al. does not pertain to electronic board systems and does not overcome the lack of teachings in Mainwaring or Sato et al.

2. Although Lang et al. describes a collaborative rating system, since neither Mainwaring nor Sato et al. suggests the use of a collaborative rating system, there is no teaching to combine Lang et al. with Mainwaring and Sato et al.

There is no mention in either Mainwaring or Sato et al. of a system which employs group-based recommendations or the use of group-based recommendations or any sort of collaborative rating system or any sort of collaborative ratings. Mainwaring teaches the use of user input only. Sato et al. is not concerned with the content of user input.

In view of the foregoing, Appellants believe that Claims 8, 16, 19, 21 and 29 are patentable over WO 99/19804 (corresponds to U.S. patent no. 6,351,271) to Mainwaring and US

patent no. 5,831,602 to Sato et al. and further in view of U.S. patent no. 5,983,214 to Lang et al.

D. Whether Claim 20 is unpatentable under 35 USC §103(a) over WO 99/19804 (corresponds to U.S. patent no. 6,351,271) to Mainwaring and US patent no. 5,831,602 to Sato et al. and further in view of U.S. patent no. 5,528,745 to King et al.

Claim 20 was rejected under 35 USC §103(a) over WO 99/19804 (corresponds to U.S. patent no. 6,351,271) to Mainwaring and US patent no. 5,831,602 to Sato et al. and further in view of U.S. patent no. 5,528,745 to King et al.

1. King et al. describes a system and method for the display of scheduling information and does not overcome the lack of teachings in Mainwaring or Sato et al.

Nothing in King et al. teaches or suggests an electronic board system which dynamically selects which information items to display on the screen in accordance with a predetermined relationship based on group-based recommendation criteria. Nothing in King et al. teaches or suggests an electronic board system which reactively selects which information items to display on the screen in accordance with sensed user interest as determined by the sensing apparatus which, in response to user interest as determined by the sensing apparatus, displays more items on the screen that are similar to items in the sensed areas at the expense of items in areas in which there is less user interest

In view of the foregoing, Appellants believe that Claim 20 is patentable over WO 99/19804 (corresponds to U.S. patent no. 6,351,271) to Mainwaring and US patent no. 5,831,602 to Sato et al. and further in view of U.S. patent no. 5,528,745 to King et al.

E. Whether Claims 22-25 are unpatentable under 35 USC §103(a) over WO 99/19804 (corresponds to U.S. patent no. 6,351,271) and US patent no. 5,831,602 to Sato et al. and further in view of U.S. patent no. 6,493,703 B1 to Knight et al.

Claims 22-25 were rejected under 35 USC §103(a) over WO 99/19804 (corresponds to U.S. patent no. 6,351,271) and US patent no. 5,831,602 to Sato et al. and further in view of U.S. patent no. 6,493,703 B1 to Knight et al.

1. Knight et al. describes a system and method for implementing an intelligent online community message board and does not overcome the lack of teachings in Mainwaring or Sato et al.

Nothing in Knight et al. teaches or suggests an electronic board system which dynamically selects which information items to display on the screen in accordance with a predetermined relationship based on group-based recommendation criteria. Nothing in Knight et al. teaches or suggests an electronic board system which reactively selects which information items to display on the screen in accordance with sensed user interest as determined by the sensing apparatus which, in response to user interest as determined by the sensing apparatus, displays more items on the screen that are similar to items in the sensed areas at the expense of items in areas in which there is less user interest

In view of the foregoing, Appellants believe that Claims 22-25 are patentable over WO 99/19804 (corresponds to U.S. patent no. 6,351,271) and US patent no. 5,831,602 to Sato et al. and further in view of U.S. patent no. 6,493,703 B1 to Knight et al.

CONCLUSION

For the reasons set forth herein, Appellants believe that the claims of the present application are patentable, and accordingly respectfully request that the Board of Patent Appeals and Interferences reverse the Examiner's rejections of the claims.

Respectfully submitted,

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9. APPENDIX

1. (Previously Presented) An electronic board system, comprising:

an electronic board including a screen for displaying information items of interest in different areas of the screen;

apparatus for sensing which areas of the screen are of current interest to users viewing the screen;

an input device for receiving information items to be displayed on the electronic board from a plurality of users;

a memory for storing information items received from the input device; and

a processor for selecting which information items from the input device and the memory to display on the screen, for determining where and how to display the selected information items on the screen and for displaying the selected information items in the different areas on the screen;

wherein the processor dynamically selects which information items to display on the screen in accordance with a predetermined relationship based on group-based recommendation criteria and reactively selects which information items to display on the screen in accordance with sensed user interest as determined by the sensing apparatus, wherein, in response to user interest as determined by the sensing apparatus, the processor displays more items on the screen that are similar to items in the sensed areas at the expense of items in areas in which there is less user interest.

2. (Original) The electronic board system of claim 1, wherein the input device comprises a multi-function device for printing, scanning and copying.

3. (Original) The electronic board system of claim 1, wherein the input device comprises a mobile computing device.

4. (Original) The electronic board system of claim 3, wherein the mobile computing

device is selected from the group consisting of personal digital assistant, portable computer and cell phone.

5. (Original) The electronic board system of claim 1, further comprising a plurality of personal computers and workstations connected to a network.

6. (Original) The electronic board system of claim 5, wherein, responsive to a user request, information displayed on the screen is transmitted to the user's personal computer or workstation and displayed thereon.

7. (Original) The electronic board system of claim 5, wherein the network comprises the Internet.

8. (Original) The electronic board system of claim 5, wherein the network comprises an intranet.

9. (Original) The electronic board system of claim 1, wherein the input device comprises a touch screen embedded in the electronic board.

10. (Original) The electronic board system of claim 1, wherein the input device, responsive to a user request for information in the memory, outputs a copy of the requested information.

11. (Original) The electronic board system of claim 1, wherein the input device comprises an electronic information system having a paper user interface.

12. (Original) The electronic board system of claim 1, further comprising a device for receiving email submissions and requests for information from users.

13. (Original) The electronic board system of claim 1, further comprising an external service for providing information and wherein the processor selects information to be displayed from the external service in accordance with the group-based recommendation criteria.

14. (Original) The electronic board system of claim 13, wherein the external service comprises video information.

15. (Original) The electronic board system of claim 13, wherein the external service comprises audio information

16. (Original) The electronic board system of claim 1, wherein, responsive to user input to the input device, the processor stores a rating for the user input information in the memory, stores a representation of the user input information in the memory and analyzes the content of the user input information.

17. (Original) The electronic board system of claim 1, wherein the predetermined relationship is a function of information topics most representative to the plurality of users at the current time.

18. (Original) The electronic board system of claim 17, wherein information is displayed about the most representative topics in a manner which enables onlookers to view which information is of current interest to the plurality of users.

19. (Original) The electronic board system of claim 1, wherein the recommendation criteria is a function of preferences of the plurality of users and wherein the predetermined relationship is a based on criteria that is likely to be of general interest to the plurality of users or of interest to several of the plurality of users.

20. (Original) The electronic board system of claim 1, further comprising a group

calendar comprising a calendar of schedules of the plurality of users and wherein the predetermined relationship is further a function of the group calendar.

21. (Original) The electronic board system of claim 1, wherein the information stored in the memory comprises a plurality of topics and wherein the processor ranks the information stored in the memory according to topic and according to activity of the plurality of users.

22. (Original) The electronic board system of claim 21, wherein user activity comprises the number of times individual users have input the item and the number of times individual users have output the item.

23. (Original) The electronic board system of claim 21, wherein each topic is ranked in accordance with the number of higher rated individual items in such topic.

24. (Original) The electronic board system of claim 23, wherein the predetermined relationship comprises a rule for determining which items of information are to be displayed on the screen based on higher ranked topics.

25. (Original) The electronic board system of claim 21, wherein the predetermined relationship comprises a rule for determining which items are to be displayed on the screen based on higher individual rankings.

26. (Original) The electronic board system of claim 1, wherein the size and location of items displayed on the screen is a function of time displayed and user interest.

27. (Previously Presented) The electronic board system of claim 1, wherein the sensing apparatus comprises a plurality of sensors disposed behind the screen, wherein each sensor detects user interest in information displayed on the screen near the sensor.

28. (Previously Presented) The electronic board system of claim 1, wherein the sensing apparatus further comprises the processor storing requests for copies of displayed items.

29. (Original) The electronic board system of claim 27, wherein the predetermined relationship comprises a rule for determining which items are to be displayed on the screen based on user ratings, item attributes and sensor input.

30. (Original) The electronic board system of claim 27, wherein the sensors detect information written on the screen or pointed to by persons near the screen.

31. (Original) The electronic board system of claim 1 further comprising a camera for detecting presence of a person near the screen and identifying the person.